REMARKS

35 U.S.C. 112 Rejections

The examiner has rejected claims 13, 22, and 30 as failing to define the invention in the manner required by 35 U.S.C. 112, second paragraph. These claims have been amended to overcome the respective rejections.

Prior Art Rejections

The examiner has rejected claims 1 – 13, 17 – 36, and 41 – 56 under 35 U.S.C. 102(b) as anticipated by Yi (U.S. 2002/0001314). The examiner has rejected claims 14 – 16 under 35 U.S.C. 103(a) as unpatentable over Yi and Sprague (U.S. 2003/0231652). The examiner has rejected claim 37 under 35 U.S.C. 103(a) as unpatentable over Yi and Jiang (U.S. 6,765,885). The examiner has rejected claims 38 – 40 under 35 U.S.C. 103(a) as unpatentable over Yi and Jiand further in view of Henson (U.S. 2002/0131591).

Claims 1 – 48

Yi does not disclose at least "dividing the encapsulated content into a plurality of pieces with each piece capable of being independently retransmitted; and supplying low level data units containing a plurality of the plurality of pieces," as recited by amended independent claim 1. Instead, Yi describes (at paragraphs [0028] and [0029] lines 1 – 9):

> [0028] The SN PDU and the LI+PU PDU get transmitted to a MAC layer through a pair of different logical channels. When a predetermined time period is elapsed after a SN PDU is transmitted through a specific logical channel, the corresponding LI+PU PDU is transmitted through another logical channel. A switching function is used in the logical channel in order to send both PDUs in different channels. For example, in order to continuously keep switching between a channel #1 and channel #2 for transmitting the SN PDU and the LI+PU PDU, respectively, the RLC layer must have a logical channel function.
> [0029] The MAC layer considers both transmitted PDUs as a single data unit and produces a transport block (TB) for each PDU after attaching a MAC header if necessary (optional). Each TB represents a MAC PDU. Similarly, the TBs produced get transmitted to a physical layer through a pair of different transport

channels, so the MAC layer needs to have a transport channel switching function similar to the logical channel switching function used in the logical channel.

The office action includes a citation of paragraph [0029] lines 1 – 9 of Yi as disclosing "supplying low level data units containing one or more of the plurality of pieces." Thus, it appears that the examiner is identifying Yi's "transport blocks" as the recited "low level data units" and Yi's "SN PDU" and "LI+PU PDU" as the recited "pieces."

Even if, for the sake of argument, it were true that Yi discloses supplying low level data units each containing one of the pieces, Yi does not disclose supplying low level data units containing a plurality of the plurality of pieces. Furthermore, one of skill in the art would not be motivated to modify Yi to supply low level data units (transport blocks) containing a plurality of the plurality of pieces (SN PDUs and LI+PU PDUs), since such modification would go against what is taught by Yi. For example, Yi describes the transport block containing only a single PDU. Combining multiple PDUs in the same transport block would be inconsistent with Yi's teaching that the "The SN PDU and the LI+PU PDU get transmitted to a MAC layer through a pair of different logical channels," and that "TBs produced get transmitted to a physical layer through a pair of different transport channels." Thus, there is no suggestion in Yi to modify the approach to supply low level data units containing a plurality of the plurality of pieces.

If one were to interpret other data portions described in Yi as the recited "pieces," such as the payload unit (PU) and/or length indicator (LI), there is no suggestion in Yi that such pieces would be "capable of being independently retransmitted."

Thus, Applicant respectfully submits that amended claim 1 is allowable.

Claims 2 – 48 are all properly dependent on claim 1, and are thus allowable therewith. Each of these dependent claims adds one or more further limitations, but those limitations are not presently relied upon to establish patentability. For that reason, and not because applicants agree with the examiner, no rebuttal is offered to the examiner's reasons for rejecting the dependent claims.

Claims 49 – 56

Yi does not disclose at least "adaptively escalating the robustness of transmission of the low level data units depending on the frequency of transmission errors," as recited by independent claim 49. The examiner has not provided any indication of where Yi describes this limitation. Instead, the examiner indicates "please see above discussion as they relate to the same subject matter." It appears that the examiner may be referring to claim 43, which recites "the level of forward error correction used provides greater error correction capability for selected blocks that are being retransmitted after failing to be correctly transmitted in an earlier attempt." However, the only "discussion" provided by the examiner with respect to claim 43, is a citation of paragraph [0031] of Yi, which does not disclose subject matter of either claim 43 or claim 49.

Instead, Yi describes in paragraph [0031]:

> [0031] According to the present invention, an error rate in transmitting a part of a RLC PDU including its sequence number can be reduced by dividing the RLC PDU in a split mode and separately transmitting the part including the SN in a different channel. In other words, the part including the SN can be transmitted in a low rate in order to reduce its error rate, and the data portions can be transmitted in a higher rate to increase the data processing rate. Additionally, it is possible to reduce the size of the buffer and to have an efficient error/flow control in the receiving system if the receiving system can receive the sequence numbers of data in advance. The present invention may well be applied to the method of hybrid automatic repeat request (APQ) for future packet data transmissions.

While this portion of Yi does describe that "the part including the SN can be transmitted in a low rate in order to reduce its error rate, and the data portions can be transmitted in a higher rate to increase the data processing rate," there is no description or even suggestion of "adaptively escalating the robustness of transmission of the low level data units depending on the frequency of transmission errors," as required by claim 49, or of "[using a level of forward error correction that] provides greater error correction capability for selected blocks that are being retransmitted after failing to be correctly transmitted in an earlier attempt," as required by claim 43.

A person of skill in the art would not be motivated to change the robustness of transmission of the low level data units, much less, to adaptively escalate the robustness of transmission ... depending on the frequency of transmission errors. To the contrary, a person of skill in the art not would not depart from Yi's teaching to transmit "the part including the SN ... in a low rate in order to reduce its error rate, and the data portions ... in a higher rate to increase the data processing rate" in order to maintain one of the stated objects of Yi:

> [0011] An object of the present invention is to provide a method of dividing a protocol data unit (PDU) into a part including its sequence number (SN) and the other part including data in a split mode and generating new PDUs corresponding to each part so that the PDU including its SN could have a lower error rate.

Claims 50 – 56 are all properly dependent on claim 49, and are thus allowable therewith. Each of these dependent claims adds one or more further limitations, but those limitations are not presently relied upon to establish patentability. For that reason, and not because applicants agree with the examiner, no rebuttal is offered to the examiner's reasons for rejecting these dependent claims.

New claims 57 – 68

New claims 57 – 68 have been added, including independent claim 57, claims 58 – 64 dependent from claim 57, claim 65 dependent from claim 1, and claims 66 – 68 dependent from claim 65. Support for these new claims can be found throughout the original specification and drawings, including page 20, line 25 – page 21, line 6; page 16, lines 7 – 14; and page 18, lines 12 – 18.

New independent claim 57

Yi does not disclose or suggest at least "dividing the encapsulated content into a plurality of sub-blocks of equal size; [and] forming a plurality of pieces of equal size, with each piece including one or more sub-blocks, to provide pieces capable of being independently retransmitted," as recited by claim 57. For example, Yi describes in paragraph [0027] lines 15 – 17 that "the LI+PU PDU has a variable length in octet units depending upon the length of the LI

or PU, but the SN PDU has a fixed length (one or two octets)." Thus, even if one were to interpret Yi's SN PDU and LI+PU PDU as the recited "pieces," there is no suggestion in Yi of "forming a plurality of pieces of equal size, with each piece including one or more sub-blocks [of equal size]."

By way of example only, including one or more sub-blocks of equal size in each piece provides advantages as described in Applicant's specification on page 21, lines 1 – 6:

> Dividing the queue into sub-blocks of equal size and sending the sequence number in the PHY Block header simplifies reassembly while reducing the overhead required to carry the sequence number. The overhead is reduced because numbering is done one sub-block at a time rather that one byte (or one bit) at a time. For example, using 256 byte blocks compared to byte number saves 8-bits of space in the PHY block header. Reassembly is simplified because the receiver exactly knows where to put each sub-block.

Furthermore, not only does Yi lack any suggestion to form a plurality of pieces of equal size, with each piece including one or more sub-blocks of equal size, but Yi does not even suggest dividing the encapsulated content into a plurality of sub-blocks, and forming a plurality of pieces, with each piece including one or more sub-blocks. Thus, there is nothing in Yi equivalent to the recited sub-blocks that one of skill in the art would modify to have equal size.

New dependent claims 58 – 68

Claims 58 – 64 are all properly dependent on claim 57, and are thus allowable therewith. Claims 65 – 68 are all properly dependent on claim 1, and are thus allowable therewith. Each of these dependent claims adds one or more further limitations, but those limitations are not presently relied upon to establish patentability.

Conclusion

In view of the above, we ask that claims 1 – 68 be allowed.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific issue or comment does not signify agreement with or concession of that issue or comment. In addition, because the arguments made above may not be exhaustive, there

may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper.

Enclosed is a $450.00 check for excess claim fees and a $1,020.00 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: 12-22-05

Elliott J. Mason, III
Reg. No. 56,569

Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110
Telephone: (617) 542-5070
Facsimile: (617) 542-8906

21224210.doc